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Existence of Joint Venture Banks and their Impacts on the Performance of Non-Joint Venture Commercial Banks in Nepal

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Abstract

This paper aims to examine the effect of the existence of joint venture (JV) banks on the performance of non-joint venture (NJV) commercial banks of Nepal. The study is based on secondary data, where the data have been collected from fourteen sampled banks' annual reports, Ministry of Finance publications, and World Bank publications. Seven years of data from Fiscal Year 2013/14 to 2019/20 of cross-section units (banks) established before 2008 have been taken for the study. Descriptive analysis, correlation, and regression have been used in the study. The result depicts that JV banks' existence in Nepal significantly impacts return on assets and credit risk levels but does not show an impact on the net interest margin (NIM) of NJV commercial banks. The regression result shows that loan deposit ratio, capital adequacy ratio (CAR), bank's equity level, and non-performing loan (NPL) of JV banks substantially impact the NIM of NJV banks. Likewise, the interest spread rate and NPL of JV banks significantly affect the ROA of NJV commercial banks. Similarly, interest spread, CAR, and foreign ownership ratio significantly impact the credit risk level of NJV commercial banks in Nepal. Likewise, the result further shows that JV banks have been earning relatively higher non-interest income, which positively reflected on the ROA of banks. Additionally, JV banks have been booking low-quality credit portfolios at a lower interest rate.

Keywords
Joint venture
Non-joint venture
Return on assets
Credit risk
Gross domestic product

A JOINT VENTURE bank is a financial institution comprising certain shares of foreign investment in a domestic bank. In contrast, the investment of domestic investors of a home country

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incorporates non-joint venture banks. A joint venture bank is established to exploit the growing demand for financial services in emerging markets and create a competitive environment where local knowledge and partnerships can be particularly valuable. The globalization of financial services is a platform that brings changes to the non-joint venture financial market. The joint venture banks' entries in developing countries like Nepal have better accountability towards the overall development of the country's economy and stand as a guardian for non-joint venture banks. (Claessens & Huizinga, 1998). Joint Venture banks bring enormous benefits to host countries by bringing new technologies, management techniques, products, and services into the country to increase their efficiency level (Blomstrom & Kokko, 1997). Moreover, resources are brought from abroad; hence, joint venter banks have more consistent financing capabilities than national banks.

The presence of joint venture banks in an economy shows changes in the performance of non-joint venture commercial banks, either in terms of profitability or managing the credit risk level of the bank. The years of banking operation in various markets would create joint venture banks to bring competitiveness for non-joint venture banks and other financial institutions in the home country in terms of efficiency and effectiveness, evidenced in the Philippines (Unite & Sullivan, 2003), India (Sensarma, 2006), Poland (Havrylchyk, 2006) and (Isik & Hassan, 2003). Likewise, the findings by Liao (2010) convey that the comparative advantage of non-joint venture banks is based on asset size, market share, regulations, and culture. In contrast, foreign banks are on new technology introduction and international expertise. He further concluded that non-joint venture banks are motivated to increase their efficiency to compete with foreign banks and also stated that even though joint venture banks have greater productivity at the initial stage, non-joint venture banks learn foreign banks' operational skills and techniques within a certain period in the case of both rapidly developed and close developed countries.

Using bank-level data from 80 different countries in 1988-1995, Demigrguc-Kunt and Huizinga (1999) investigated the factors that influence commercial banks' interest margins and profitability. The study found that foreign banks have more significant margins and profits than non-joint venture banks in underdeveloped nations. Lensink and Hermes (2004) studied the short-term effects of foreign bank entry on the behaviour of the non-joint venture banking sector. They found that entry of foreign banks is generally allied with higher costs and margins for non-joint venture banks at lower levels of economic development. The study in Ghana by Esther and Matthew (2012) showed that non-joint venture banks are performing well than foreign banks in Ghana in both ROA and ROE, but foreign banks have more earning power in terms of net interest margin than the local banks. The study by Pradhan and Shakya (2016) mentions that there is a significant impact on administrative expenses and risk, while no impact is observed in interest spread and profitability due to the existence of foreign banks in the case of Nepal. The GDP and equity levels also significantly impact profitability and risk.

Therefore, there is no uniformity in the findings of the study of various papers. The result shows that the impact of joint venture banks' presence varies based on the economic and financial arrangements of a country where research has been performed (Agrawal, 1994). Though many studies are conducted in various nations, the findings of these studies may not be applicable in the context of Nepal. In the case of the Nepalese economy, where we find different financial and economic conditions from others, a separate study is required. In this regard, this study has been carried out to determine the impact of the JV bank entry on the performance of Nepal's non-joint venture commercial banks. In the case of Nepal, similar research has been conducted by Pradhan and Shakya (2016), where data from 2001 to 2011 has been taken for research using the Simple

ordinary least square (OLS) regression model. However, the simple OLS model fails to take into account to address individual heterogeneity. This research has focused on mitigating the research gaps that are still present in previous studies by using the panel regression model.

The paper aims to identify the impact of JV banks on the performance of existing NJV commercial banks. The performance of NJV banks is measured using ROA, NIM, and CR. The rest of the paper is organized as follows: the second section deals with a literature review of related studies and hypothesis development. Materials and methods are discussed in the third section. Likewise, results and discussion are in the fourth section, and in the fifth section, we conclude.

Literature Review and Hypotheses Development

Based on the availability of similar research, many of the international papers and some Nepalese paper results are discussed in this literature review. Bhattacharya (1993) studied the role of foreign banks in underdeveloped countries and revealed that the entrance of foreign did not substantially impact the financial sector of those nations whose non-joint venture banks were competitive and self-sufficient. Using bank-level data from 80 countries in 1988-1995, Demigrguc-Kunt and Huizinga (1999) investigated the factors influencing commercial banks' interest margins and profitability. The study found that foreign banks have more significant margins and profits then non-joint venture banks in underdeveloped nations. Likewise, a study on eighty developing and developed nations by Claeessens et al. (2001) revealed that foreign banks have good profitability, higher interest margins, and more tax payments in under-developed countries, while the same is contradictory in developed countries nations. As per his study, rather than the market share of the foreign bank, the number of entrants of foreign banks matters. In addition, the impact is felt on foreign banks' entry year rather than after their more significant market share. He further identified that a higher percentage of foreign ownership in banks results in a reduction of margin and profitability of non-joint venture-owned banks. In the study by Unite and Sullivan (2001), foreign banks correspond more to the improvement of operational efficiencies; however, deterioration of loan portfolio. They further concluded that non-joint venture banks are forced to become more efficient, concentrate on operations to reduce risk and be less dependent on banking practices due to the existence of joint venture banks. Lensink and Hermes (2004) studied the short-term effects of foreign bank entry on the behavior of the NJV banking sector. They found that entry of foreign banks is generally allied with higher costs and margins for NJV banks at lower levels of economic development. Bayraktar and Wang (2004) used bank data from 1995 to 2002 from 30 developed and developing nations to study the entry of international banks, the performance of non-joint venture banks, and the chronology of financial liberalization. Panel data regressions have been applied and found that foreign bank entry led to significant improvement in non-joint venture bank competitiveness in nations where the stock market is liberalized first; while controlling macroeconomic variables and grouping nations based on the order of liberalization. The findings showed that the maximum values of overhead cost, non-interest earning, and loan loss provisions are in the Latin American and Asian countries which liberalized their non-joint venture financial market first. Likewise, the countries that first liberalized their capital account had the poorest correlations between performance measures and the share of international banks.

The joint venture bank entry in Korea did not improve the profits of NJV private banks. Kim and Lee (2004) investigated how joint venture bank entry in Korea affected the performance of non-joint venture private banks. The performance factor was the efficiency effects of foreign

bank entry. Samples of foreign banks were Kookmin Bank (KB) and Korea First Bank (KFB), whose vital financial indicators are compared with other private non-joint venture banks. The result revealed that the net earnings were similar between 2001 and 2002. However, lower ROA and ROE than the average ratio of private non-joint venture banks were noted for KFB in 2002. Likewise, there is no evidence that foreign bank entry has improved local banks' profits.

Further, the author looked at how the efficiency of specific non-joint venture banks was affected by foreign ownership banks. The study revealed that private non-joint venture banks with a shareholding of more foreign investment achieved fewer profits. Susanto and Rokhim (2011) studied the impact on competition, performance, and short-term risk of increasing foreign shareholding in the Indonesian banking industry. The study took six years of data since 2003 from 115 commercial banks. According to the result, foreign banks are gaining better profitability and cost efficiency in comparison to non-joint venture banks. The result also revealed reduced profitability and increased competition and risk in increasing joint venture banks at the industry level. Except for NIM, foreign ownership makes performance variations in the Indonesian banking sector variable. Likewise, the paper demonstrates that foreign banks outperform non-joint venture banks in terms of profitability (ROA and NIM) and cost efficiency (CIR). Likewise, foreign ownership makes a difference in risk which means that higher risk is associated with an increase in foreign ownership. A study by Khrawish (2011) revealed that banks with large capital sizes and overheads should have higher net interest margins and profitability. The study in Ghana by Esther and Matthew (2021) showed that JNV banks are performing well than foreign banks in Ghana in both ROA and ROE, but foreign banks have more earning power in term of net interest margin than the local banks. A study by Ebenezer et al. (2017) on bank-specific and country-specific factors of commercial bank profitability in Nigeria used balanced panel data using audited financials of sixteen commercial banks for six years since 2010. The study showed that adequate capital and liquidity have a favourable and considerable impact on bank profitability. The significant contributors to ROA and ROE during the period were CAR, liquidity, efficiency, and GDP growth rate. GDP growth has a positive and significant impact on banks' profitability. The outcome suggested that banks increase their profitability by boosting capital and liquidity and lowering operating expenses by keeping banking activities transparent.

In Nepal, based on banks' financial characteristics, Jha and Hui (2012) examined the financial performance of various ownership-structured commercial banks and identified the performance factors that the financial ratios exposed. Samples for the study were eighteen commercial banks, including public sector banks, non-joint venture private banks, and joint venture banks. The study period was six years from 2005. Likewise, two regression models with multivariate regression analysis were conducted to estimate the impact of CAR, NPL, interest expenses to total loan, NIM ratio, and CD ratio on the ROA and ROE of sampled banks. The result revealed that non-joint venture private banks were just as efficient as banks involved in joint ventures, however, public sector banks were much less effective than both. Likewise, CAR, interest expenses to total loan, and NIM significantly influenced the ROA, while the capital adequacy ratio considerably affected return on equity. The study by Pradhan and Shakya (2016) mentions that there is a significant impact on administrative expenses and risk, while no impact is observed in interest spread and profitability due to the existence of foreign banks in the case of Nepal. The GDP and equity labels also significantly impact profitability and risk. Prasai (2016) studied the effect of foreign banks' entry on Nepalese banks' performance. This paper reveals that foreign banks' entry affects the performance of non-joint venture banks. Likewise, foreign banks' CAR and ROA significantly

impact non-joint venture banks' profitability. Furthermore, variables like JV bank numbers, age of establishment, operating expenses ratio, CAR, ROA of JV banks, and inflation impact the NIM of non-joint venture banks.

Bhattarai (2016) studied NPL impact on the profitability of commercial banks in Nepal using pooled OLS model considering six years of data from 2010 to 2015. According to the regression results, non-performing loans harm bank profitability as a whole (ROA), but they positively impact shareholders' returns (ROE). Additionally, the findings demonstrate that bank size significantly enhances bank profitability (ROA, ROE). Unlikely, only ROE is positively and significantly affected by the GDP growth rate.

In the case of Nepal, Panta (2018) investigated bank-specific and macroeconomic factors of non-performing loans as well as their effects on profitability. The study used secondary data from 7 joint ventures from 2006 to 2017 and employed a fixed effect panel model in estimating three different experimental equations. As per the study, factors for a non-performing loan are net interest margin and size of the bank, which revealed that bank size has a significant negative relationship. In contrast, the net interest margin substantially positively affects NPL. Macroeconomic variables found no impact on NPL. Likewise, a significant effect was found on profitability by NIM, size of the bank, and NPL, while an insignificant relationship was built on ROA by the size of the bank.

Using data from twenty-eight commercial banks between 2010 and 2016, Budhathoki et al. (2020) investigated the effect of liquidity, leverage, and the amount of the bank's total assets on profitability by the ordinary least square method. According to the result, the higher loan-deposit ratio negatively and significantly affects the bank's ROA. Similarly, a higher equity-to-assets ratio positively and significantly affects ROA and NIM. Likewise, larger bank size significantly and positively affects ROA, ROE, and NIM. Singh et al. (2021) studied the effect of Non-Performing Loans (NPL) on the profitability of Nepalese commercial banks taking data from 2015 to 2019 using multiple regression analysis. According to the result, ROA, Bank Size, GDP, and Inflation significantly affect NPL but not CAR. As per result, GDP growth has a positive and significant effect on the NPL of commercial banks.

Based on the above review, the following hypotheses have been formulated :

H_1: Bank-specific variables of joint venture banks (loan-to-deposit ratio, operating expenses, interest spread, capital adequacy ratio, equity level ratio, non-performing loan, foreign banks' entry, and foreign ownership ratio) have a significant impact on the net interest margin of non-joint venture commercial banks.

H_2: Bank-specific variables of joint venture banks (loan-to-deposit ratio, operating expenses, interest spread, capital adequacy ratio, equity level ratio, non-performing loan, foreign banks' entry, and foreign ownership ratio) have a significant impact on the ROA of non-joint venture commercial banks.

H_3: Bank-specific variables of joint venture banks (loan-to-deposit ratio, operating expenses, interest spread, capital adequacy ratio, non-performing loan, foreign banks' entry, and foreign ownership ratio) have a significant impact on the credit risk level of non-joint venture commercial banks.

Materials and Methods

The study employed a descriptive research design. Inferential statistics has been adopted to examine the causal relationship between the JV banks' existence and the performance of the non-JV banks in the Nepalese financial sector. Only secondary data have been considered to identify the impact between the variables. The details of secondary data associated with firm-specific variables have been provided in Appendix. The population of the study is total commercial banks which were twenty-seven during the study time. The sample has been selected as follows.

Table 1

Description of Population and Sample

Sector	Population (N)	Sample (n)	Sample (in percent)
Non-JV Banks	20	7	35
Joint Venture Banks	7	7	100
Total	27	14	51.85

Table 1 shows that the overall sample represents 51.85 percent of the total commercial banks in Nepal. Samples are selected from two strata called JV banks and NJV commercial banks in operation before 2008. Therefore, based on the study period from 2013/14 to 2019/20, 14 commercial banks have been chosen as the study's sample. The data were collected within the stated time frame, consisting of 98 observations. Likewise, control variables, namely, GDP growth rate and inflation, are collected from World Bank development indicators and the ministry of finance database, respectively, for seven years, constituting 14 observations. The total number of observations in the study thus constitutes 112.

The study has implemented descriptive and inferential methods of analysis. After illustrating the descriptive statistic data, the correlation of independent variables with each dependent variable has been identified. Once the correlation among the data has been obtained, various techniques have been applied to find the best-fit regression model. The nature of data was panel data due to various banks' data availability over seven years. A simple OLS model has not been preferred for the research as simple OLS keeps the data in a single basket and does not consider the individual heterogeneity (both observed and unobserved) among the cross-section units (Bevans, 2020). So, after a simple OLS model, the researcher tried to find the best-fit model within the fixed effect model and random effect model. Hausman test is used to determine whether to choose a fixed effect or random effect model for analysis. Hence, hausman test has been conducted for different models in the study.

The study developed three models to assess the impact of JV banks on the performance of non-JV commercial banks; each consists of the dependent variable and identical independent variables. The study used the model based on the model of Claessens et al. (2001); Unite and Sullivan (2001), Susanto et al. (2011), and Pradhan and Shakya (2016) as hereunder:

The Regression Models

Model 1

$$NIM = \alpha + \beta_1 LTD_{it} + \beta_2 OE_{it} + \beta_2 IS_{it} + \beta_4 CAR_{it} + \beta_5 EQlevel_{it} + \beta_6 NPL_{it} + \beta_7 RSZ_{it} + \beta_8 FORent_{it} + \beta_9 FORown_{it} + \beta_{10} GDP_t + \beta_{11} INF_t + \mu_i + e_{it}$$

Model 2

$$ROA = \alpha + \beta_1 LTD_{it} + \beta_2 OE_{it} + \beta_2 IS_{it} + \beta_4 CAR_{it} + \beta_5 EQlevel_{it} + \beta_6 NPL_{it} + \beta_7 RSZ_{it} + \beta_8 FOR ent_{it} + \beta_9 FORown_{it} + \beta_{10} GDP_t + \beta_{11} INFt + \mu_i + e_{it}$$

Model 3

$$CR = \alpha + \beta_1 LTD_{it} + \beta_2 OE_{it} + \beta_2 IS_{it} + \beta_4 CAR_{it} + \beta_5 EQlevel_{it} + \beta_6 NPL_{it} + \beta_7 RSZ_{it} + \beta_8 FORent_{it} + \beta_9 FORown_{it} + \beta_{10} GDP_t + \beta_{11} INF_t + \mu_i + e_{it}$$

Table 2

Description of Dependent and Independent Variables of the Study

Variable	Proxy Measures
Dependent	Net Interest Margin (NIM) = ratio of net interest income to total assets
	Return in Assets (ROA) = ratio of net income to total assets
	Credit risk (CR) = ratio of loan loss provision to total assets
Independent	Loan to deposit ratio (LTD) = ratio of total loan to total deposit
	Operating expenses ratio (OE) = ratio of total overhead expenses to total assets
	Interest rate spread (IS) = ratio of interest income on loans to total loans and the ratio of interest expenses to total deposits
	Capital adequacy ratio (CAR) = ratio of total capital to total risk-weighted assets
	Equity level ratio (EQlevel) = ratio of the book value of shareholder's equity to total assets
	Non-performing loan ratio (NPL) = ratio of non-performing loans to total loan outstanding
	Bank asset ratio (RSZ) = ratio of total assets of the bank to total assets of all commercial banks
	Foreign entry ratio (FORent) = ratio of the number of the foreign banks to the total number of banks
	Foreign ownership ratio (FORown) = ratio of the foreign bank's total assets to sampled commercial bank's total assets
Control	GDP growth rate (GDP)
	Inflation (INF)

Result and Analysis

Descriptive statistics have been used in the study to describe the characteristics of dependent, independent, and control variables.

Table 3 shows that NIM is a minimum of 1.22 percent and a maximum of 5.6 percent having an average of 3.39 percent and deviation is found to be 0.76 percent. The ROA of sampled commercial banks is 1.81 percent on average having a minimum of 0.55 percent and a maximum of 3.57 percent deviated by 0.55 percent during seven years. The credit risk is 0.70 percent on average having a minimum risk level of 0.43 percent and a maximum of 1.12 percent with a deviation of 0.118 percent during seven years.

Table 3

Descriptive Statistics of Variables

Variable (in abbreviations)	Observation	Mean	Std. Dev.	Min	Max
NIM	98	3.396	.762	1.22	5.6
ROA	98	1.813	.556	.55	3.57
CR	98	.703	.118	.43	1.115
LTD	98	77.388	10.165	48.92	95.64
OE	98	4.386	4.2	.9	30.44
IS	98	4.611	.878	2.8	8.37
CAR	98	13.529	2.955	4.55	22.99
EQlevel	98	11.238	4.264	1.067	27.982
NPL	98	2.188	2.327	.1	11.92
RSZ	98	7.25	2.655	2.808	13.992
FORent	98	24.31	1.136	22.581	25.926
FORown	98	47.026	.792	46.142	48.377
GDPgth	98	4.5	3.723	-2.08	8.9
INF	98	6.577	2.145	4.1	9.9

Likewise, the LTD ratio was 77.39 percent on average with a minimum ratio of 48.92 percent and a maximum of 95.64 percent, and deviated by 10.16 percent among the data during seven years. Similarly, the percentage of operating expenses is 4.38 percent on average with a minimum value of 0.9 percent, and a maximum of 30.44 percent deviated by 4.2 percent during seven years. The interest spread is 4.61 percent on average having a minimum of 2.8 percent and a maximum of 8.37 percent and deviated by 0.87 percent among the data within seven years. The banks' capital adequacy ratio is 13.53 percent on average having a minimum of 4.55 percent and a maximum of 22.99 percent and deviated by 2.9 percent among the data during seven years.

Similarly, the equity level is 11.23 percent on average with a minimum of 1.06 percent and a maximum of 27.9 percent deviating by 4.26 among the seven years of data. The NPL of sample banks is 0.1 percent at a minimum and 11.92 percent at a maximum. It ranges at an average of 2.1 percent on an average and occurs with a deviation of 2.33 percent. RSZ is the ratio of the total size of a bank with all commercial banks that year. RSZ is around 7.25 percent on average having a minimum of 2.8 and a maximum of 13.99 percent. The foreign entry ratio of banks is 24.31 percent on average with a minimum value of 22.58 percent and a maximum of 25.9 percent. The foreign ownership of a bank is measured in terms of assets. On average, 47.02 percent of the total banks' assets are joint ventures. The GDP growth of the nation during seven years is 4.5 percent on average with a minimum of -2.08 percent and a maximum of 8.9 percent. the inflation level ranges at 6.5 percent on an average of seven years with a minimum of 4.1 percent and a maximum of 9.9 percent deviating by 2.1 percent from the data.

Relationship between NIM and Independent Variables

Table 4 shows the relationship between NIM and various independent variables. The NIM is positively correlated with LTD, IS, CAR, EQlevel, RSZ, and GDP growth, while is negatively correlated with OE and NPL. This correlation is valid at one percent, five percent, and ten

percent levels of significance, as indicated below.

Table 4

Correlation between NIM and Independent Variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) NIM	1.000											
(2) LTD	0.281***	1.000										
	(0.005)											
(3) OE	-0.207**	0.100	1.000									
	(0.041)	(0.326)										
(4) IS	0.359***	0.003	-0.005	1.000								
	(0.000)	(0.973)	(0.965)									
(5) CAR	0.215**	0.292***	-0.018	0.058	1.000							
	(0.034)	(0.004)	(0.859)	(0.572)								
(6) EQlevel	0.254*	0.335***	-0.042	0.149	0.639***	1.000						
	(0.012)	(0.001)	(0.683)	(0.144)	(0.000)							
(7) NPL	-0.460***	0.150	0.423***	0.040	-0.410***	-0.086	1.000					
	(0.001)	(0.141)	(0.002)	(0.698)	(0.003)	(0.398)						
(8) RSZ	0.359***	-0.204**	0.058	0.165	-0.235**	-0.240**	0.105	1.000				
	(0.000)	(0.044)	(0.570)	(0.105)	(0.020)	(0.017)	(0.306)					
(9) FORent	-0.033	0.282**	-0.091	-0.175	0.494***	0.318***	0.031	-0.035	1.000			
	(0.747)	(0.005)	(0.372)	(0.086)	(0.000)	(0.001)	(0.764)	(0.731)				
(10) FORown	-0.125	0.064	0.063	-0.221**	0.135	-0.061	0.046	-0.027	0.467***	1.000		
	(0.222)	(0.532)	(0.541)	(0.028)	(0.185)	(0.552)	(0.650)	(0.793)	(0.000)			
(11) GDPgth	0.215**	0.086	0.020	0.149	0.036	0.136	-0.013	-0.045	-0.072	-0.599***	1.000	
	(0.034)	(0.401)	(0.842)	(0.144)	(0.723)	(0.182)	(0.896)	(0.662)	(0.484)	(0.000)		
(12) INF	-0.157	-0.276***	0.032	0.053	-0.402***	-0.318***	0.151	0.063	-0.736***	-0.130	-0.579***	1.000
	(0.123)	(0.006)	(0.752)	(0.601)	(0.000)	(0.001)	(0.299)	(0.535)	(0.000)	(0.202)	(0.000)	

*** p<0.01, ** p<0.05, * p<0.1

Table 4 explains that an increase in loan to deposit ratio, interest spread, capital adequacy ratio, equity level, and asset size ratio of JV bank led to an increase in the net interest margin of non-joint venture commercial banks. This result, for example, illustrates that an increase in loan and interest spread of JV banks does not impact the increase of NIM of non-joint venture banks. In contrast, when there is an increase in operating expenses and NPL of JV banks, there is a decrease in NIM of non-joint venture banks. The significantly highest correlation of NIM is with the non-performing loan (0.46) and the lowest correlation with operating expenses (0.207).

Table 5 shows the correlation between ROA and various independent variables. ROA positively correlates with interest rate spread, capital adequacy ratio, equity level, assets size ratio, and GDP growth rate. In contrast, it is negatively correlated with foreign ownership of JV banks which is validated by the study in Korea by Kim and Lee (2004). These results show that an increase in interest rate spread, capital adequacy ratio, equity level, assets size ratio, and GDP growth rate of JV banks will tend to increase the ROA of non-joint venture banks. In contrast, an increase in JV banks' foreign ownership will decrease non-joint venture banks' ROA. The highest correlation of ROA is found with interest spread (0.324) and then EQlevel (0.300). A study by Jha and Hui (2012) also revealed that CAR has a substantial impact on ROE, and ROE has been

influenced by CAR, interest expenses to loans, and NIM.

Table 5

Relationship between ROA and Independent Variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) ROA	1.000											
(2) LTD	-0.045	1.000										
	(0.658)											
(3) OE	-0.071	0.100	1.000									
	(0.485)	(0.326)										
(4) IS	0.324***	0.003	-0.005	1.000								
	(0.001)	(0.973)	(0.965)									
(5) CAR	0.277***	0.292**	-0.018	0.058	1.000							
	(0.006)	(0.004)	(0.859)	(0.572)								
(6) EQlevel	0.300***	0.335***	-0.042	0.149	0.639***	1.000						
	(0.003)	(0.001)	(0.683)	(0.144)	(0.000)							
(7) NPL	-0.117	0.150	0.423***	0.040	-0.410***	-0.086	1.000					
	(0.253)	(0.141)	(0.002)	(0.698)	(0.003)	(0.398)						
(8) RSZ	0.271***	-0.204**	0.058	0.165	-0.235**	-0.240**	0.105	1.000				
	(0.007)	(0.044)	(0.570)	(0.105)	(0.020)	(0.017)	(0.306)					
(9) FORent	-0.058	0.282***	-0.091	-0.175	0.494***	0.318***	0.031	-0.035	1.000			
	(0.569)	(0.005)	(0.372)	(0.086)	(0.000)	(0.001)	(0.764)	(0.731)				
(10) FORown	-0.210**	0.064	0.063	-0.221**	0.135	-0.061	0.046	-0.027	0.467***	1.000		
	(0.038)	(0.532)	(0.541)	(0.028)	(0.185)	(0.552)	(0.650)	(0.793)	(0.000)			
(11) GDPgth	0.231**	0.086	0.020	0.149	0.036	0.136	-0.013	-0.045	-0.072	-0.599***	1.000	
	(0.022)	(0.401)	(0.842)	(0.144)	(0.723)	(0.182)	(0.896)	(0.662)	(0.484)	(0.000)		
(12) INF	-0.104	-0.276***	0.032	0.053	-0.402***	-0.318***	0.151	0.063	-0.736***	-0.130	-0.579***	1.000
	(0.309)	(0.006)	(0.752)	(0.601)	(0.000)	(0.001)	(0.299)	(0.535)	(0.000)	(0.202)	(0.000)	

*** p<0.01, ** p<0.05, * p<0.1

Table 6

Relationship between Credit Risk and Independent Variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) CR	1.000											
(2) LTD	0.581***	1.000										
	(0.000)											
(3) OE	0.020	0.100	1.000									
	(0.846)	(0.326)										
(4) IS	-0.068	0.003	-0.005	1.000								
	(0.506)	(0.973)	(0.965)									
(5) CAR	0.200**	0.292***	-0.018	0.058	1.000							
	(0.049)	(0.004)	(0.859)	(0.572)								
(6) EQlevel	0.152	0.335***	-0.042	0.149	0.639***	1.000						
	(0.134)	(0.001)	(0.683)	(0.144)	(0.000)							
(7) NPL	0.196	0.150	0.423***	0.040	-0.410***	-0.086	1.000					
	(0.053)	(0.141)	(0.002)	(0.698)	(0.003)	(0.398)						

(8) RSZ	-0.367***	-0.204**	0.058	0.165	-0.235**	-0.240**	0.105	1.000				
	(0.000)	(0.044)	(0.570)	(0.105)	(0.020)	(0.017)	(0.306)					
(9) FORent	0.425***	0.282**	-0.091	-0.175	0.494***	0.318***	0.031	-0.035	1.000			
	(0.000)	(0.005)	(0.372)	(0.086)	(0.000)	(0.001)	(0.764)	(0.731)				
(10) FORown	0.243**	0.064	0.063	-0.221**	0.135	-0.061	0.046	-0.027	0.467***	1.000		
	(0.016)	(0.532)	(0.541)	(0.028)	(0.185)	(0.552)	(0.650)	(0.793)	(0.000)			
(11) GDPgth	-0.204**	0.086	0.020	0.149	0.036	0.136	-0.013	-0.045	-0.072	-0.599***	1.000	
	(0.044)	(0.401)	(0.842)	(0.144)	(0.723)	(0.182)	(0.896)	(0.662)	(0.484)	(0.000)		
(12) INF	-0.187*	-0.276***	0.032	0.053	-0.402***	-0.318***	0.151	0.063	-0.736***	-0.130	-0.579***	1.000
	(0.065)	(0.006)	(0.752)	(0.601)	(0.000)	(0.001)	(0.299)	(0.535)	(0.000)	(0.202)	(0.000)	

*** p<0.01, ** p<0.05, * p<0.1

Table 6 shows the correlation between credit risk and various independent variables. Credit risk is significantly and positively correlated with loan-to-deposit ratio, CAR, foreign entry, and foreign ownership while negatively correlated with RSZ and GDP growth rate. Among the variables, credit risk is highly correlated with loan-to-deposit ratio (0.581) then RSZ (-.367); the least correlated is capital adequacy ratio.

Impact of Existence of Joint Venture Banks on Performance of Non-Joint Venture Commercial Banks

Regression analysis has been conducted in this research to identify which independent variables highly impact the dependent variable indicators so that conclusions can be drawn from the highly impacted ones and ignore those statistically insignificant. The regression results using the random effect model are shown in Tables 7, 8, and 9, as the Hausman test results in table 10 recommend that random effect is the better model.

Table 7

Regression results of Net Interest Margin of Non-joint venture Banks and Joint Venture Bank Specific Variables

NIM	Coef.	St.Err.	T-value	P-value	[95 percent Conf	Interval]
LTD	.025	.015	1.68	.093	-.004	.054
OE	.02	.025	0.81	.418	-.029	.069
IS	.149	.131	1.14	.256	-.108	.405
CAR	.201	.069	2.90	.004	.065	.337
EQlevel	-.09	.038	-2.38	.018	-.165	-.016
NPL	-.446	.195	-2.29	.022	-.829	-.064
RSZ	.065	.058	1.12	.262	-.049	.179
FORent	-.336	.594	-0.56	.572	-1.5	.829
FORown	-.215	.496	-0.43	.664	-1.188	.758
GDPgth	-.067	.233	-0.29	.775	-.524	.391
INF	-.144	.489	-0.29	.768	-1.103	.815
Constant	18.692	40.471	0.46	.644	-60.629	98.014
Mean dependent var		3.599		SD dependent Variable		0.899

Overall r-squared	0.466	Number of obs	49
Chi-square	32.337	Prob > chi2	0.001***
R-squared within	0.194	R-squared between	0.623

*** p<.01, ** p<.05, * p<.1

NIM = 18.692 + 0.025LTD+ 0.02OE + 0.149IS + 0.201CAR - 0.09EQlevel -0.446NPL + 0.065RSZ - 0.336FORent - 0.215FORown - 0.067GDPgth - 0.144INF

Table 8

Regression Results of ROA of Non-joint Venture Banks and Joint Venture Bank Specific Variables

ROA	Coef.	St.Err.	t-value	p-value	[95 percent Conf	Interval]
LTD	-.009	.012	-0.77	.439	-.032	.014
OE	-.011	.019	-0.56	.574	-.049	.027
IS	.198	.103	1.93	.054	-.003	.4
CAR	-.051	.054	-0.94	.346	-.158	.055
EQlevel	-.018	.03	-0.62	.536	-.077	.04
NPL	-.464	.153	-3.02	.002	-.765	-.163
RSZ	.015	.046	0.34	.735	-.074	.105
FORent	-.664	.467	-1.42	.155	-1.578	.251
FORown	-.458	.39	-1.18	.24	-1.222	.305
GDPgth	-.263	.183	-1.44	.151	-.622	.096
INF	-.613	.384	-1.60	.11	-1.366	.14
Constant	45.662	31.774	1.44	.151	-16.615	107.938
Mean dependent var		1.713		SD dependent var		0.658
Overall r-squared		0.387		Number of obs		49
Chi-square		23.318		Prob > chi2		0.016**
R-squared within		0.244		R-squared between		

*** p<.01, ** p<.05, * p<.1

ROA = 45.662 - 0.09LTD - 0.11OE + 0.198IS - 0.51CAR - 0.018EQlevel - 0.464NPL + 0.015RSZ - 0.664FORent - 0.458FORown - 0.263GDPgth - 0.613INF

Table 8 shows that LTD, OE, CAR, EQlevel, NPL, FORent, FORown, GDPgth, and inflation have an inverse relationship with ROA, while IS and RSZ show a positive relationship with ROA. Among those variables, IS and NPL shows a significant relationship with ROA. Therefore, controlling other variables, when there is an increase in interest spread by one percent in joint venture banks, there will be an increase in ROA by 0.198 percent in non-joint venture banks. Likewise, an increase in NPL by one percent in joint venture banks led to a decrease in ROA by 0.464 percent in non-joint venture commercial banks of Nepal which is also validated by the study of Singh et al. (2021). Overall, the model is significant as the probability value is 0.016.

Table 9 shows that IS, CAR, FORent, GDPgth, and inflation show an inverse relationship with credit risk while FORown, OE, EQlevel, and NPL show a positive relationship with credit

risk. IS, CAR, and FORown show a significant relationship with CR among those variables. To elaborate, controlling other variables, in non-joint venture banks, credit risk will drop by 0.025 percent for every one percent increase in interest spread in joint venture banks.

Table 9

Regression Results of CR of Non-joint Venture Banks and Joint Venture Bank Specific Variables

CR	Coef.	St.Err.	t-value	p-value	[95 percent Conf	Interval]
LTD	0	.002	0.29	.774	-.003	.004
OE	.002	.003	0.83	.409	-.003	.008
IS	-.025	.015	-1.66	.097	-.055	.005
CAR	-.016	.008	-1.99	.047	-.032	0
EQlevel	.002	.004	0.54	.588	-.006	.011
NPL	.034	.023	1.51	.132	-.01	.078
RSZ	0	.007	0.00	.998	-.013	.013
FORent	-.047	.069	-0.69	.49	-.182	.087
FORown	.106	.057	1.85	.065	-.218	.006
GDPgth	-.04	.027	-1.50	.134	-.093	.012
INF	-.082	.056	-1.45	.147	-.192	.029
Constant	7.781	4.665	1.67	.095	-1.363	16.924
Mean dependent var		0.712		SD dependent var		0.101
Overall r-squared		0.443		Number of obs		49
Chi-square		29.410		Prob > chi2		0.002***
R-squared within		0.284		R-squared between		0.584

*** p<.01, ** p<.05, * p<.1

CR = 7.781 – 0 LTD - 0.002OE - 0.025IS - 0.016CAR + 0.002EQlevel - 0.034NPL + 0.0RSZ – 0.047FORent - 0.106FORown - 0.04GDPgth - 0.082INF

Likewise, as CAR increases by one percent in JV banks, credit risk decreases by 0.16 percent in the case of NJV commercial banks of Nepal. Similarly, an increase in foreign ownership by one percent in joint venture banks will increase the risk level by 0.106 percent in NJV commercial banks of Nepal. Overall, the model is significant as the probability value is 0.002.

The Hausman test result was conducted to select an appropriate approach among the fixed effect and random effect models, and its results are illustrated below.

Table 10

Hausman Specification Test

	Test result for NIM Coef.	Test result for ROA Coef.	Test result for CR Coef.
Chi-square test value	19.384	24.83	21.125
P-value	.055	.097	.071

Table 10 gives evidence for not rejecting the null hypothesis because the probability is greater than 5 percent. Hence, the result of the Hausman test above recommends using the random effect model.

Conclusion

The paper's objective was to identify how the operation of joint venture banks affects the performance of non-joint venture banks in Nepal. The study found that joint venture banks considerably influence non-joint venture banks, affecting return on assets and credit risk levels. The loan-to-deposit ratio and capital adequacy ratio of joint venture banks increase the net interest margin of non-joint venture banks. In contrast, the inverse relationship of equity level and non-performing loans of joint venture banks exists with the net interest margin of non-joint venture commercial banks. Likewise, an increase in the interest spread of joint venture banks led to an increase in the return on assets of non-joint venture banks. An increase in ROA is likely due to an increase in the interest spread of non-joint venture banks, which is the result of market competition among banks.

Similarly, interest spread and CAR of joint venture banks harm the credit risk of NJV banks, while foreign ownership of JV banks has a positive impact on the credit risk of non-JV banks. Joint venture banks in Nepal have a relatively higher ROA and lower credit risk level than non-joint venture banks, consistent with previous research by Susanto and Rokhim (2011). However, non-joint venture banks in Nepal have higher net interest margins than joint venture banks which validates the saying of Demigrguc-Kunt and Huizinga, (1999) and Esther, (2012), while joint venture banks earn more non-interest income. The existence of joint venture banks has impacted the credit portfolio quality of non-joint venture banks, with non-joint venture-owned banks investing in relatively riskier portfolios. Nonetheless, both types of banks have experienced gradually increasing credit risk levels over the seven years.

The research would benefit non-joint venture and joint venture banks in analyzing their competitiveness in terms of profitability, cost management, and credit risk. Nepal Rastra Bank could use the findings to identify the advantages and disadvantages of joint venture banks. Further, bank management could use the information to take corrective action and increase market share. The study would also help people distinguish between the competitiveness and safety of the two bank types for savings and investments.

The findings of this study have been constrained by the limited number of time series data due to the unavailability of secondary data and a limited number of non-joint venture banks to balance the panel data of both JV and non-JV banks. The research could be more beneficial when data could be considered from an entry of joint venture banks in Nepal to examine the actual impact on non-joint venture banks. Besides, only impacts on non-JV commercial banks are taken. Future research could also investigate the impact of joint venture commercial banks on development banks and financial companies in Nepal, as well as other independent variables like efficiency, safety, liquidity, and policy change. Additionally, the study lacks input from employees' perspectives which is also the platform in another paper.

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